

Peer Review File

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**Reviewer A**

**Comment 1:** This is an important area of study. The paper is well-written with few grammatical errors (although please ensure consistency in "theMednet" vs. "TheMednet" vs. "TheMedNet" which appear throughout the manuscript).

**Reply 1:** We thank the reviewer for this comment. We have changed all references to the social network to “theMednet” in the text to ensure consistency.

**Changes in the text:** We have changed “TheMednet” in the conclusion section of the abstract, the third paragraph of introduction, and the fourth paragraph of the conclusion to “theMednet.”

**Comment 2:** The introduction could be strengthened by providing background information about theMednet community (who has access to it, any information about the user characteristics, etc).

**Reply 2:** We thank the reviewer for this comment. We have added more background information on theMednet as a new third paragraph of the introduction.

**Changes in the text:** We have added a new third paragraph to the introduction: “theMednet is an online social network of physicians, the goal of which is “to facilitate dialogue among physicians on common clinical questions and practice patterns” (13). It is “an up to date knowledge base of clinical best practices for situations that are not clearly addressed by guidelines, published literature, and in textbooks” in which “expert analyses of evidence-based information and experiential insights” are conveyed through a question-and-answer format (14). As February 2019, it consisted of “over 13,000 medical, radiation, gynecological, and pediatric oncologists, rheumatologists, and hematologists,” 60% of whom were community oncologists, 25% academics, and 15% residents and fellows (15).”

**Comment 3:** The authors should reference other studies that have used theMednet in a similar manner to that described in this manuscript.

**Reply 3:** We thank the reviewer for this comment. We have added several references to prior papers that have investigated the use of theMednet in paragraph 4 of the introduction.

**Changes in the text:** The first two sentences of paragraph 4 of the introduction now read: “In recent years, theMednet has been utilized to share discussions from tumor boards, relay experiential knowledge, and disseminate treatment strategies among clinicians during the COVID-19 pandemic (16–18). Utilization of theMednet is widespread among radiation oncologists; in fact, thousands of them have used it to obtain answers to questions regarding clinical management (19).”

**Comment 4:** The conclusion briefly mentions limitations of the methodology but this should be expended to discuss potential sources of bias in more detail.

**Reply 4:** We thank the reviewer for this comment. We have added more limitations of this study to paragraph 3 of the conclusions section.

**Changes in the text:** Paragraph 3 of the conclusions section now reads: “Of course, there are inherent limitations in attempting to glean knowledge gaps among an entire cohort of practicing radiation oncologists and identifying areas of emphasis for future palliative radiation therapy and palliative and supportive care curricula by examining voluntary posts to a social network. A study of this nature is inherently prone to self-selection bias, as individual actors choose whether or not to post their queries to the social network of interest. Thus, it is unclear whether the questions posed by various clinicians are reflective of the uncertainties of radiation oncologists as a whole. Additionally, it is possible that our inclusion criteria, requiring that questions be tagged with both “Palliation” and either “Radiation Oncology” or “General Radiation Oncology” may have missed representative questions posed by clinicians that were not accurately tagged and thus resulted in findings that inadequately describe the knowledge gaps of practicing radiation oncologists. Thirdly, given that a significant fraction of questions could not be attributed to an individual at a particular level of training, it is not possible to clarify if the knowledge gaps identified in this study are particularly acute among radiation oncology residents, fellows, and/or

**attendings. Lastly, given the relatively small sample size of questions included in this study, it is possible that our results inappropriately overrepresented some topics and underrepresented others.”**

### **Reviewer B**

In their manuscript, Sindhu et al. attempt to define relevant topics for a palliative residency curriculum in radiation oncology by systematically examining the questions posted to the Mednet, a physician-only community providing expert answers to relevant clinical questions posted by other physicians. The authors identify several recurrent themes and subthemes among posted palliative radiation oncology themed questions over the period of roughly 8 years. They also examine other statistics, such as the number of views, replies and likes.

The manuscript addresses an important topic -- the need to expand and formalize palliative curricula among radiation oncology programs in the United States. The manuscript is very concisely and clearly written with a well-organized table summarizing the findings. The major limitation of this study is whether the topics on the Mednet represent the true scope of clinical questions in palliative radiation oncology encountered by clinicians. It is possible that clinicians are less likely to post certain types of questions that rise. Furthermore, with only 161 palliative-themed questions posted over the period of 8 years, it is not clear that there is sufficient volume of questions posted on the Mednet to be convinced that the full breadth of palliative topics are covered. The authors do acknowledge this limitation in their discussion, but the manuscript would be strengthened by corroborating these findings from another source such as a survey. Nevertheless, given very limited amount of data available on this important topic, the manuscript does provide valuable information that should be published.

**Reply 1: We thank the reviewer for this comment. We have added several additional sentences to paragraph 3 of the conclusion to clarify additional limitations in the manuscript.**

**Changes in the text: Paragraph 3 of the conclusion section now reads: “Of course, there are inherent limitations in attempting to glean knowledge gaps among an entire cohort of practicing radiation oncologists and identifying areas of emphasis for future palliative radiation therapy and palliative and supportive**

care curricula by examining voluntary posts to a social network. A study of this nature is inherently prone to self-selection bias, as individual actors choose whether or not to post their queries to the social network of interest. Thus, it is unclear whether the questions posed by various clinicians are reflective of the uncertainties of radiation oncologists as a whole. Additionally, it is possible that our inclusion criteria, requiring that questions be tagged with both “Palliation” and either “Radiation Oncology” or “General Radiation Oncology” may have missed representative questions posed by clinicians that were not accurately tagged and thus resulted in findings that inadequately describe the knowledge gaps of practicing radiation oncologists. Thirdly, given that a significant fraction of questions could not be attributed to an individual at a particular level of training, it is not possible to clarify if the knowledge gaps identified in this study are particularly acute among radiation oncology residents, fellows, and/or attendings. Lastly, given the relatively small sample size of questions included in this study, it is possible that our results inappropriately overrepresented some topics and underrepresented others.”

**Reply 2:** We thank the reviewer for this comment. We have added survey data on the views of radiation oncologists towards the provision of palliative and supportive care in paragraph 4 of the conclusion section. There is limited survey data, however, on the views of radiation oncologists regarding the challenges of delivering palliative radiation therapy. We have noted this limitation in the manuscript.

**Changes in the text:** Paragraph 4 of the conclusion section now reads: “However, it should be noted that prior studies have identified significant knowledge gaps related to the delivery of palliative and supportive care among practicing radiation oncologists. A 2003 survey with over 600 respondents who were members of the American Society for Radiation Oncology, for example, found that approximately 40% “thought that their residency program did only a fair or poor job in preparing them for pain and symptom management and communication with patients and families” and 73.2% “felt ill prepared to deal with end-of-life needs” (20). Additionally, a 2017 survey found that large proportions of practicing US radiation oncologists lacked confidence in their ability to manage some common symptoms experienced by patients with cancer. Majorities, in fact, did not have confidence in their ability to manage anorexia,

anxiety, depression, fatigue, and insomnia. Additionally, less than 60% had confidence in their ability to navigate several common clinical scenarios faced by patients at the end of their lives (21). Unfortunately, there is limited survey data exploring the knowledge gaps of practicing radiation oncologists when it comes to the delivery of palliative radiation therapy. Thus, further studies surveying their views would be necessary to ensure that our findings are consistent with those of the field as a whole. However, our findings, when combined with the lack of confidence practicing radiation oncologists report in managing common symptoms and scenarios experienced by patients with cancer, strongly suggest that an expanded role for palliative and supportive care in radiation oncology residency curricula is warranted.”

#### Reviewer C

This is a very unique study utilizing the social media to identify knowledge gaps in palliative RT. The questions posted in the social media likely represents the real areas of need in knowledge base. This study will provide insight on the area of need in radiation curriculum.

**Reply 1: We thank the reviewer for these comments.**

**Changes in the text: N/A**

#### Reviewer D

**Comment 1:** I think the concept of using a social network to query potential topics for developing an educational curricula is interesting. However, I think the study design is problematic as presented in the discussion as a limitation, which I find to be a major limitation. There is no clear explanation of why theMedNet would be a good resource to assess this as opposed to another social media network like twitter or Wikipedia or student doctor.net or forum vs looking more directly at topics presented at ASTRO, ASCO as a guide based on evidence so the experts can guide what residents should know as opposed to relying on a social media network.

**Reply 1: We thank the reviewer for this comment. theMednet was selected due to its large user base and because its stated purpose is “to facilitate dialogue among physicians on common clinical questions and practice patterns,” unlike Twitter and forums sponsored by ASTRO. We have pointed this out in the third and fourth paragraphs of the introduction.**

**Changes in the text: The fourth paragraph of the introduction now reads “In recent years, theMednet has been utilized to share discussions from tumor boards, relay experiential knowledge, and disseminate treatment strategies among clinicians during the COVID-19 pandemic (16–18). Utilization of theMednet is widespread among radiation oncologists; in fact, thousands of them have used it to obtain answers to questions regarding clinical management (19). In this study, we attempted to identify areas of emphasis for future palliative radiation therapy curricula by examining relevant questions posted to theMednet. We present the following article in accordance with the MDAR reporting checklist.”**

**Comment 2:** It is also a supposition that these topics are not covered within existing frameworks for programs that do have a radiation oncology curricula. The knowledge gaps presented in the background relate more to a lack of clear infrastructure within residency programs and also that palliation has change as newer techniques of treatment delivery for re-irradiation, for oligometastatic disease with SBRT, and how care is integrated within an oncology center is also changing and so palliative treatment is also more complex and likely also handled across a variety of subject matter experts and disciplines.

**Reply 2:** We thank the reviewer for this comment. As noted in the results, 11% of the questions could be attributed to a radiation oncology resident in this study. However, it should be noted that 60% of questions could not be attributed to an individual at a particular stage of training. This is a limitation of the manuscript, which we have now noted.

**Changes in the text: The second to last sentence of the third paragraph of the conclusion now reads: “Thirdly, given that a significant fraction of questions could not be attributed to an individual at a particular level of training, it is impossible to clarify if the knowledge gaps identified in this study are particularly acute among radiation oncology residents, fellows, and/or attendings.”**

**Comment 3:** Perhaps this would be more of an editorial as opposed to a research report? If it is a research report, then it would be important to have a clear intervention or impact or have a way to identify which questions are coming from rad

onc residents, how they were identified as "good", which questions came from programs with dedicated curricula vs not.

**Reply 3: We thank the reviewer for this comment. To clarify, questions were identified as “good” if they were marked as such by a member of theMednet community. The “good question” option on theMednet is akin to the “like” button on both Facebook or Instagram.**

**Changes in the text: N/A**

**Comment 4:** Also more clearly define what is meant by palliation or concepts that should be covered in a palliative curriculum within radiation oncology? I would propose that advocating for a palliative component to the board certification process would be the best mechanism to ensure that these concepts are covered in the course of residency training.

**Reply 4: We thank the reviewer for this comment. As noted in the results, approximately 40% of questions could be attributed to a specific individual on theMednet; the other 60% were posted by individuals who did not reveal an affiliation. Of these 40% of attributable questions, roughly 1/4 were posted by residents. Unfortunately, since a significant number of questions cannot be attributed to a particular individual, it is impossible to know how many questions were posted by residents at residency programs that lacked palliative care curricula. We have added this limitation to the manuscript.**

**Changes in the text: The second to last sentence of the third paragraph of the conclusion now reads: “Thirdly, given that a significant fraction of questions could not be attributed to an individual at a particular level of training, it is impossible to clarify if the knowledge gaps identified in this study are particularly acute among radiation oncology residents, fellows, and/or attendings.”**

**Reply 4: We thank the reviewer for this comment. Paragraph 2 of the conclusion suggests potential broad themes for palliative care curricula in radiation oncology residency. We have added an additional sentence to the 2nd paragraph of the conclusion section to clarify potential topics for inclusion in palliative radiation therapy curricula.**

**Changes in the text: The second to last sentence of the second paragraph of the conclusion now reads: “On the basis of this study’s findings, for example, palliative radiation therapy curricula should, at the minimum, outline the clinical scenarios in which it is appropriate to offer palliative radiation therapy to patients; discuss the efficacy of palliative radiation therapy in alleviating various symptoms experienced by patients with cancer; explore the pros and cons of selecting particular radiation therapy techniques and dose regimens when delivering palliative radiation therapy; define dose constraints for various organs at-risk throughout the body; explain how target delineation differs when treating a patient with either definitive and palliative radiation therapy; and review when to initiate radiation therapy and hold systemic therapy.”**

**Comment 5:** Alternatively, perhaps could look in changing trends in types of question over time or volume of questions to see whether this is identifying a growing gap.

**Reply 5:** We thank the reviewer for this comment. We agree that the credentialing authorities should consider adding a palliative component to the board certification process. We have added this idea as the last sentence of paragraph 2 of the conclusion.

**Changes in the text: The last sentence of the second paragraph of the conclusion now reads: “To ensure that these topics are covered during residency, the addition of a palliative component to the board certification process should be considered.”**

#### **Reviewer E**

This paper presents an important question to help guide development of palliative care curricula, and its findings provide an interesting springboard for further investigation.

**Comment 1:** Using a review of public questions on theMedNet, a medical professional social network is a reasonable initial approach to gauge the topics where practicing oncologists have uncertainty regarding palliative care. The methods section is limited, mentioning only relevant question tags and dates used as inclusion criteria; however, at the beginning of the results, only 161 questions out of 3927 identified



satisfied the inclusion criteria, and greater clarity as to why they were excluded would be helpful.

**Reply 1: We thank the reviewer for this comment. In this analysis, we included only questions related to palliative radiation oncology. In order to accomplish this, we only included questions that were tagged both with both the terms “Palliation” and either “Radiation Oncology” or “General Radiation Oncology.” While many questions (3927) were tagged with one of these labels, only 161 had two qualifying tags (in others words, “Palliation” and “Radiation Oncology” or “General Radiation Oncology”). We have clarified our inclusion criteria in the Methods. Additionally, in the course of reviewing the paper, we discovered a coding error that resulted in the report of a smaller number of total questions than we actually examined (we reported 3,927 questions in the initial submission, but the correct number is 4,188). We have fixed this error in the both the abstract and results.**

**Changes in the text: We have changed the first two sentences of the methods to clarify how questions were selected for inclusion in this analysis: “Questions tagged with “Radiation Oncology,” “General Radiation Oncology,” and “Palliation” that were posted to theMedNet on or before January 7, 2020 were examined. To select for palliative radiation oncology questions specifically, only questions that were tagged with both “Palliation” and either “Radiation Oncology” or “General Radiation Oncology” were included in this analysis.”**

**Comment 2:** The analysis of the data is appropriate; however, it may be helpful to provide clarification when and if some smaller theme groups (e.g. patient counselling, with 8 questions) have outsized effects on the results.

**Reply 2: We thank the reviewer for this comment. We have added a sentence to the third paragraph of the results to indicate that questions about “patient counseling” and “pre-radiation therapy work-up” had the fewest number of average views.**

**Changes in the text: We have added an additional sentence to the third paragraph of the results that reads “Questions about “Patient counseling” (8 questions) and “Pre-radiation therapy work-up” (7 questions) had the fewest number of average views (208.4 and 154.6 views, respectively).”**

**Comment 3:** There are some clear weaknesses of this study, which are mentioned in the paper, including the self-selecting bias of questions posted to an online social network. This study also has a small sample of questions (161), and so there is a risk of overemphasis of some topics or underrepresentation of others. Please comment on how to mitigate this.

**Reply 3:** We thank the reviewer for this comment. We have now noted this limitation in the third paragraph of the conclusion. We have also noted that this study's limitations should be taken into account when interpreting its results. We believe that further studies surveying the views of practicing radiation oncologists would be necessary to further clarify gaps in knowledge among this cohort, an idea which we have expressed in paragraph 4 of the conclusion.

**Changes in the text:** We have added a sentence to the 34d paragraph of the conclusion that states “Additionally, given the relatively small sample size of questions included in this study, it is possible that our results overrepresented some topics and underrepresented others.”

**Comment 4:** The writing and organization of this paper is good. There is one missing open parenthesis on line 106.

**Reply 4:** We thank the reviewer for this comment. We have closed the parenthesis on line 106.

**Changes in the text:** The text now reads: “Of the eight broad thematic question groups we identified, questions about dosing and treatment duration had the most views (702.5 on average; range 154.6–702.5 for thematic question groups) and answers (2.1 on average; range 1.0–2.1).”

**Comment 5:** No need for formal statistical review. The conclusion is supported by the results.

**Reply 5:** We thank the reviewer for this comment.

**Changes in the text:** N/A